

THE INVENTION CLAIMED IS

Sub P1

5 1. A laser, comprising:
a lasing chamber,
a semiconductor pumping device within said lasing chamber, and
trivalent titanium ions dissolved in a liquid host within said lasing
chamber.

2. The laser of claim 1 including a circulation system for circulating
said trivalent titanium ions dissolved in a liquid host into and out of said
lasing chamber.

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3. The laser of claim 2 wherein said circulation system includes a
closed loop for circulating said trivalent titanium ions dissolved in a liquid
host into and out of said lasing chamber, a pump, and a heat exchanger.

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4. The laser of claim 2 including a system for correcting the
thermally induced optical phase errors.

5. The laser system of claim 4 wherein said system for correcting the thermally induced optical phase errors includes a system for circulating said liquid host through a closed loop so that the liquid host is divided into two equal lengths along the laser propagation direction and placed in series in the lasing chamber with the fluid flows arranged in opposite directions.

6. A laser method comprising:
providing a lasing liquid
containing trivalent titanium ions dissolved in a liquid host, and
optically exciting said lasing liquid by a semiconductor pumping device to provide a powerful laser beam.

7. The laser method of claim 6 including the step of correcting thermally induced optical phase errors.

8. The laser method of claim 6 wherein said step of correcting thermally induced optical phase errors includes dividing the flowing lasing liquid into two equal lengths along the laser propagation direction, and placing the two sections in series in the optical laser cavity with the fluid flows arranged in opposite directions.

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9. A laser system, comprising:

an optical cavity,

a diode pumping device within said optical cavity,

a lasing liquid containing trivalent titanium ions dissolved in a

5 liquid host within said optical cavity, and

a circulation system that provides a closed loop for circulating said

lasing liquid into and out of said optical cavity, said circulation system

including a pump and a heat exchanger.

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